INDEPENDENT PEER REVIEW SYSTEM FOR STOCK ASSESSMENTS

LACK OF CONFLICT OF INTEREST STATEMENT

Background and Purpose

This program, administered by Natural Resources Consultants, Inc. ("NRC Corp."), is for the external peer review of stock assessments and related management advice for selected stocks for which the National Marine Fisheries Service (NMFS) has responsibility. Generally, review activities will take one of two forms: (a) review of an existing stock assessment product, and (b) review through active participation in a stock assessment working group or a review committee such as those NMFS has in place. It is of utmost concern that the specific input provided by the reviewers be unbiased. This means that the selected individuals will provide their expert advise free from the influence of Government managers, the fishing industry, or any other interest group. For this reason, anyone who has

(a) received in the past (1-2) years substantial funds from industry or environmental groups with vested interests in resources for which NMFS has stewardship responsibilities,
(b) received in the recent past substantial funds from NMFS via a sole-source contract,
(c) participated in a previous peer-review concerning the particular stock assessment under review, or
(d) a history of an advocacy role for a specific viewpoint,

shall not be eligible to be reviewer with this program.

All reviews shall remain confidential to the extent permitted by law.

Assurance of Lack of Conflict

I, TIMOTHY TRICAS do not possess any said attributes that would be considered a source of conflict of interest associated with my work as a reviewer in this program. When assigned a specific review task under this program, I will notify NRC Corp. if there are any other reasons why I should be unable to provide an unbiased review.

Signed  Date 8/31/01

NRC
NATURAL RESOURCES CONSULTANTS, INC.
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MEMORANDUM

TO: Dr. Timothy Tricas

FROM: Lee Alverson

SUBJECT: LCS

DATE: October 29, 2001

In addition to the new conflict of interest statement sent to you October 26, 2001, by Natural Resources Consultants that NOAA requested you review and sign, we have also been asked by NOAA to confirm whether any reviewer participated in the Center of Independent Experts first Atlantic Large Coastal Shark Assessments Review (CIE).

I have _____, have not ✓ participated in previous CIE reviews.

Signed by : Timothy C Tricas

Date: 10/31/01

If you are unable to sign that you have not participated, please provide an explanation of your participation.

It is important that we receive your conflict of interest form, CV and this form, as soon as possible.

CURRICULUM VITAE

Timothy Carl Tricas

Current Position: Assistant Professor

Address: Department of Zoology
University of Hawaii at Manoa
2538 McCarthy Mall, Edmondson Hall
Honolulu, HI 96822
(808) 956-6148. Fax: (808) 956-9812
email: tricas@hawaii.edu
home page URL: http://www.hawaii.edu/fishlab

Education: Ph.D., Zoology, University of Hawaii, 1986
M.A., Biology, Calif. State Univ., Long Island, 1976
B.A., Biology, Univ. of the Pacific, Stockton, Calif. 1972

Research Interests:
Sensory neurobiology, behavioral ecology of marine fishes
Reproduction and behavioral ecology of sharks and rays
Biomedical electronics and biotelemetry

Professional Societies:
American Association for the Advancement of Science, American Elasmobranch Society, American Society of Ichthyologists and Herpetologists, Animal Behaviour Society, Ecological Society of America (lifetime member), International Society for Behavioral Ecology, Sigma Xi, Society for Neuroscience, Southern California Academy of Sciences (lifetime member)

Editorial Positions:
1999-present Advisory Editor, *Environmental Biology of Fishes*

Reviewer: *American Zoologist, Animal Behaviour, Brain Research, Copeia, Coral Reefs, Environmental Biology of Fishes, Bulletin of Marine Science, Journal of Comparative Physiology, Journal of Experimental Biology, Fishery Bulletin, Marine Biology, Proceedings of the Royal Society (London)*, National Geographic Society, National Institutes of Health, National Science Foundation, National Undersea Research Program, Sea Grant

College Teaching Experience:

Undergraduate:
Biology of Fishes, Coral Reef Fish Ecology, Biometry, Biomedical Engineering, Computers in Nursing, Ethology, Microcomputer Programs, Undergraduate Research

Graduate:
Animal Behavior, Behavior and Sensory Biology of Fishes, Elasmobiology, Seminar in Animal Behavior, Topics in Ecology, Ultrasonic Biotelemetry, Directed Research, Dissertation, Thesis

Professional Positions:

2000 - present	Assistant Professor, Department of Zoology, University of Hawaii
1997 - 2000	Associate Professor, Department of Biological Sciences Florida Institute of Technology
1991 - 1996	Assistant Professor, Department of Biological Sciences Florida Institute of Technology
1989 - 1991	Research Associate, Washington University School of Medicine. Visual activation of the octavolateralis efferent system.
1990	Instructor, Hawaii Institute of Marine Biology, University of Hawaii. Behavioral ecology and ethology of coral reef animals (summer course).

1986 - 1989	NIH Post-doctoral Fellow, Washington University School of Medicine. Vestibular neuron activity in free-swimming toadfish.
1984 - 1985	Research Associate, University of Hawaii Sea Grant College Program. Otolith analysis of aging and recruitment in tropical reef fish populations.
1982 - 1984	Teaching Assistant, University of Hawaii (Biology Program).
1983	Instructor, Hawaii Loa College (Computer Sciences), Kaneohe, HI.
1982 - 1983	Principal Investigator, Earthwatch Expeditions. Foraging and territorial behavior of butterflyfishes.
1983	Instructor, Assets Schools, Pearl Harbor, HI.
1978 - 1982	Teaching Assistant, University of Hawaii (Department of Zoology).
1977	Electronics Technician, Laboratory of Sensory Sciences, University of Hawaii. Computer interfacing.
1976 - 1977	Hyperbaric Chamber Technician, Santa Catalina Marine Biological Laboratory, University of Southern California
1975 - 1976	Research Assistant, Office of Naval Research Grant. Ecology of blue sharks at Santa Catalina Island, California.
1973 - 1975	Teaching Assistant, Department of Biology, California State University, Long Beach, CA.
1973 - 1975	Substitute Teacher, Garden Grove Unified School District, CA. Grades K through 12.
1971	Research Assistant, U.S. Fish and Wildlife Service, Sierra Nevada Aquatic Research Laboratory. Blood physiology of trout.

Research grants awarded while at the University of Hawaii:

2001-2003 U.S. Navy SBIR Phase 2 contract "Towed System Marine Life Attack Reduction" with TRI Austin, Inc. ($108,079).

Grants Pending:

"The Lateralis Connection: Integration of the Auditory and Lateral Line Systems in Sound Reception." National Science Foundation, IBN - Sensory Systems, $344, 850, 3 yr.. Submitted July 2001, notification date November-December 2001

Graduate fellowships received by University of Hawaii graduate students in the Tricas lab:

National Science Foundation Predoctoral Fellowship Award to Ms. Frederique Kandel (Ph.D. graduate student in Zoology). This is a 3-year award for the 2001-2004 academic years. It covers graduate stipend, tuition and research supply support, $85,500.

National Institutes of Health, National Research Service Award, MARC Fellowship to Mr. Ariel Rivera-Vicente. This is a 5-year award for the 2002-2007 academic years. It covers graduate stipend, tuition, fees and research supply support, approximately $125,000.

Previous Grants/Awards:

1999-2000	U.S. Navy SBIR Phase 1 contract "Towed System Marine Life Attack Reduction" with TRI Austin, Inc., $70,000.
1993-1998	NIH NRSA Award for doctoral student, J. Sisneros. "Effects of Androgens on Electrosensory System of Round Stingrays". $93,152.
1992-1994	National Science Foundation. "Functional morphological analysis of the feeding mechanism in galeomorph sharks", $12,439.
1992	Biomedical Research Support Grant. "Neuroanatomy and sex steroid activity in the stingray electroreceptor periphery and brainstem nuclei". $7,400.
1991-1994	Whitehall Foundation. "Neural processing of complex bioelectric waveforms used during courtship in the round stingray". $95,541.
1989	McDonnell Center for Higher Brain Function. "Visual activation of the octavolateralis efferent system". $26,250.

1986-1989	NIH Post-doctoral Fellowship, Washington University of Medicine. "Vestibular neuron activity in free-swimming toadfish", $33,000.
1986	Pacific-Asian Scholarship, University of Hawaii, 1986.
1985	Best student paper award at the Tenth Annual Albert Tester Symposium, University of Hawaii.
1984	University of Hawaii Sea Grant College Program. "Otolith analysis of growth and recruitment of tropical reef fish".
1982-1993	Earthwatch Foundation, Belmont, MA. Natural history of coral reef fishes (with E. Reese, T. Hourigan and P. Motta).
1978	Biomedical Research Support Grant, University of Hawaii. "Development of miniature telemetry tags for tracking reef fish movements".
1969	California State Scholarship to University of the Pacific.

Manuscripts and chapters submitted/accepted while at the University of Hawaii:

1. Motta, P.J., R.E. Hueter, T.C. Tricas and A.P. Summers. Kinematic analysis of suction feeding in the nurse shark, *Ginglymostoma cirratum* (Orectolobiformes, Ginglymostomatidae). *Copeia* (in press).
2. Bodznick, D., J. Montgomery and T.C. Tricas. Electroreception: extracting behaviorally important signals from noise, *In:* Collin, S. & J. Marshall (eds.), *Sensory Processing in the Aquatic Environment*, Springer-Verlag (in press).
3. Response dynamics of the ampullary electrosensory system through ontogeny (with J. Sisneros, submitted to *Brain, Behavior and Evolution*).

Publications:

Peer-reviewed publications

Sisneros, J.A. and T.C. Tricas. 2001. Androgen-induced changes in the response dynamics of ampullary electrosensory primary afferent neurons. *Journal of Neuroscience* 20:8586-8595.

Tricas, T.C. and S.H. Gruber. 2001. Prelude to the anthology in memory of Donald Richard Nelson. *Environmental Biology of Fishes* 60:7-11.

Tricas, T.C. 2001. Shark meets man: the research and academic life of Donald Richard Nelson (1939-1997). *Environmental Biology of Fishes* 60:15-18.

Tricas, T.C. 2001. The neuroecology of the elasmobranch electrosensory world: why peripheral morphology shapes behavior. *Environmental Biology of Fishes* 60:77-92.

Tricas, T.C., K.P Maruska and E. Rasmussen. 2000. Annual cycles of steroid hormone production, gonad development, and reproductive behavior in the Atlantic stingray. *General and Comparative Endocrinology* 118(2):209-225.

Forlano, P.M., K.P. Maruska, S.A. Sower, J.A. King and T.C. Tricas. 2000. Differential distribution of GnRH-ir neurons in the stingray brain: Functional and evolutionary considerations. *General and Comparative Endocrinology* 118(2):226-248.

Kajiura, S.M. and T.C. Tricas. 2000. Dermal bite wounds as indicators of reproductive seasonality and behaviour in the Atlantic stingray, *Dasyatis sabina*. *Environmental Biology of Fishes* 58(1):23-31.

Maruska, K.M. and T.C. Tricas. 1998. Morphology of the mechanosensory lateral line system in the Atlantic stingray, *Dasyatis sabina*: The Mechanotactile Hypothesis. *Journal of Morphology* 238:1-22.

Sisneros, J.A., T.C. Tricas and C.A. Luer. 1998. Response properties and biological function of the skate electrosensory system during ontogeny. *Journal of Comparative Physiology A* 183(1):87-99.

Tricas, T.C. and J.G. New. 1998. Sensitivity and response dynamics of electrosensory primary afferent neurons to near threshold fields in the round stingray. *Journal of Comparative Physiology A* 182(1):89-101.

Motta, P.J., T.C. Tricas, R.E. Hueter, and A.P. Summers. 1997. Feeding mechanics and functional morphology of the jaws of the lemon shark, *Negaprion brevirostris* (Chondrichthyes, Carcharhinidae). *Journal of Experimental Biology* 200:2765-2780.

Maruska, K.M., E.G. Cowie and T.C. Tricas. 1996. Periodic gonadal activity and protracted mating in elasmobranch fishes. *Journal of Experimental Zoology* 276:219-232.

Kajiura, S.M. and T.C. Tricas. 1996. Seasonal dynamics of dental sexual dimorphism in the Atlantic stingray, *Dasyatis sabina*. *Journal of Experimental Biology* 199:2297-2306.

Tricas, T.C ., S.W. Michael, and J.A. Sisneros. 1995. Electrosensory optimization to conspecific phasic signals for mating. *Neuroscience Letters* 202(1-2):129-132.

Motta, P.J., R.E. Hueter, and T.C. Tricas. 1991. An electromyographic analysis of the biting mechanism of the lemon shark, *Negaprion brevirostris*: Functional and evolutionary implications. *Journal of Morphology* 210:55-69.

Tricas, T.C. and S.M. Highstein. 1991. Action of the octavolateralis efferent system upon the lateral line of free-swimming toadfish, *Opsanus tau*. *Journal of Comparative Physiology A* 169-25-37.

Tricas, T.C. and S.M. Highstein. 1990. Visually mediated inhibition of lateral line primary afferent activity by the octavolateralis efferent system during predation in the free-swimming toadfish, *Opsanus tau*. *Experimental Brain Research* 83:233-236.

Tricas, T.C. 1989. Food and competitors as determinants of territory size in the Hawaii butterflyfish, *Chaetodon multicinctus*. *Animal Behaviour* 37:830-841.

Tricas, T.C. and J.T. Hiramoto. 1989. Sexual differentiation, oocyte development, and spawning seasonality in the butterflyfish, *Chaetodon multicinctus*. *Environmental Biology of Fishes* 25:175-185.

Tricas, T.C. 1989. Prey selection by coral-feeding butterfly-fishes: Strategies to maximize the profit. *Environmental Biology of Fishes* 25:171-185.

Tricas, T.C. 1986. Life history, foraging ecology, and territorial behavior of the Hawaiian butterflyfish, *Chaetodon multicinctus*. Ph.D. Dissertation. University of Hawaii (Honolulu). 247 pp.

Tricas, T.C. 1985. Feeding ethology of the white shark, *Carcharodon carcharias*. *Buletin of the Southern California Academy of Sciences, Memoirs* 9:81-91.

Tricas, T.C. and E.M. LeFeuvre. 1985. Mating behavior of the reef white-tip shark, *Triaenodon obesus*. *Marine Biology* 84(3):233-237.

Tricas, T.C. 1985. The economics of foraging in corallivorous butterflyfishes of Hawaii. *Proc. 5th Int. Coral Reef Congress* 5:409-414.

Tricas, T.C. and J.E. McCosker. 1984. Predatory behavior of the white shark, *Carcharodon carcharias*, and notes on its biology. *Proceedings of the California Academy of Sciences* 43(14):221-238.

Tricas, T.C. 1982. Bioelectric-mediated predation by swell sharks *Cephaloscyllium ventriosum*. *Copeia* 1982(4):948-952.

Tricas, T.C., L.R. Taylor, and G. Naftel. 1981. Diel activity of the tiger shark *Galeocerdo cuvier*, at French Frigate Shoals, Hawaiian Islands. *Copeia* 1981(4):904-908.

Tricas, T.C. 1980. Courtship and mating-related behaviors in myliobatid rays. *Copeia* 1980(3):553-556.

Tricas, T.C. 1979. Relationships of the blue shark *Prionace glauca*, and its prey species near Santa Catalina Island, California. *Fishery Bulletin* 77(1):175-182.

Tricas, T.C. 1977. Food habits, movements, and seasonal abundance of the blue shark, *Prionace glauca* (Carcharhinidae), in southern California waters. Master's thesis, California State University, Long Beach, 79 pp.

Book chapters

Tricas, T.C. 1999. Shark Ecology. In: J. Stevens (ed.), *Sharks and shark attack*, 2nd edition. pp. 96-101. Weldons, Pty., NSW.

New, J.G. and T.C. Tricas. 1997. Electroreceptors and Magnetoreceptors: Morphology and Function. In: *Cell Physiology Source Book* (N. Sperlakis, ed.), Second Edition, pp. 741-758. Academic Press, San Diego.

Hourigan, T., T.C. Tricas, and E.S. Reese. 1988. Coral reef fishes as indicators of environmental stress in coral reefs, pp. 107-135. In: D.F. Soulé and G.S. Kleppel (eds.), *Marine organisms as indicators*. Springer-Verlag, New York, NY.

Tricas, T.C. 1987. Shark Ecology. In: J. Stevens (ed.), *Sharks and shark attack*, pp. 96-101. Weldons, Pty., NSW.

Books

Tricas, T.C. and S.H. Gruber (editors). 2001. The Behavior and Sensory Biology of Elasmobranch Fishes: An Anthology in Memory of Donald Richard Nelson. *Developments in Environmental Biology of Fishes* 20, Kluwer Academic Publishers, Dordrecht. 320 pp.

Tricas, T.C., K. Deacon, P. Last, J.E. McCosker, T.I. Walker, and L. Taylor. 1997. *Sharks and Rays*. Weldon Owen, Sydney. 288 pp.

Manuscripts/Books in Preparation:

1. Response dynamics of mechanosensory lateral line primary afferents in the stingray: test of the mechanosensory hypothesis (in prep. with K. Maruska for *J. Comp. Physiol. A*).
2. The role of electroreception in elasmobranch fishes (in prep. with J. Sisneros for invited contribution to *Journal Physiology, Paris*).
3. Ampullary electroreceptor systems in elasmobranch fishes (invited chapter for "The senses of fishes: Adaptations for the reception of natural stimuli". (Publisher Narosa Publishing House, New Delhi).
4. Social and agonistic sound production by the territorial butterflyfish, *Chaetodon multicinctus* (in prep for *Environmental Biology of Fishes*).
5. Differential distribution of cutaneous receptors in the Atlantic stingray, *Dasyatis sabina*: functional significance during mating behavior (in prep for *Brain, Behavior, and Evolution*).
6. Ontogenetic changes in sensitivity and spatial fields in the lateral line and electrosensory systems of the stingray (in prep for *Journal of Morphology*).
7. Food habits of the Atlantic stingray, *Dasyatis sabina*.
8. The role of electroreception in mating populations of round stingrays.
9. Central organization of gonadotropin releasing hormone immunoreactive neurons within the octavolateral sensory processing regions of the stingray brain.
10. Prey energetics and selectivity in the Atlantic stingray *Dasyatis sabina*.
11. Frequency and intensity characteristics of passive bioelectric field potentials in six species of batoid elasmobranchs.
12. Life history of the coral feeding butterflyfish, *Chaetodon multicinctus*.

Film Documentaries of Research:

Sharks and Rays. Dangerous and Endangered Series, ESPN. 1995.
World of the Shark. National Geographic Films and BBC (60 min.). 1992.
Mysteries of the Sea. Ocean Films Ltd., San Francisco (90 min.). 1980.
Sharks of Catalina. Bill Burrud Productions, Los Angeles (60 min.). 1977.
Inside the Shark. NOVA Series, WGBH - Boston (PBS). Horizon Series (Science), BBC, London (60 min.). 1976.
The Shark: Maneater or Myth. Encyclopedia Britannica Educational Films (60 min). 1976.

Invited Seminars and Professional Society Presentations:

2002 Who's eating whom? Marine conservation public forum series at the Monterey Bay Aquarium, Monterey, California (invited speaker).
2001 Neurophysiological test of the mechanotactile hypothesis. Annual Meetings of the Soc. for Neuroscience (with K. Maruska), San Diego.
2001 Suction feeding in elasmobranchs: functional and evolutionary considerations. Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., Penn. State College.
2001 Electrosensory sex, steroids and ecomorphology of the mammal-like fishes. Ecology, Evolution and Conservation Biology Program seminar, Univ. Hawaii at Manoa.
2000 The behavioral neuroecology of feeding and reproduction in the stingray: a 2-D animal living in a 3-D world. Invited seminar, Hawaii Institute of Marine Biology & Department of Zoology, University of Hawaii.
2000 Modulation of the electric billboard: How reproductive steroids and neuropeptides shape electrosensory perception during mating in the stingray. Invited seminar, Department of Neurobiology and Behavior, Cornell University, Ithaca.
1999 Androgen-induced changes in the frequency response properties of ampullary electrosensory primary afferent neurons. Annual Meetings of the Soc. for Neuroscience (with J. Sisneros).
1999 Cutaneous receptor density in the Atlantic stingray: Sexual dimorphisms and possible functional significance during mating. Annual Meetings of the Soc. for Neuroscience (with M. Callahan and P. Forlano).
1999 Steroids, neuropeptides and electrosensory perception in elasmobranch fishes. Conference on the Sensory Processing in the Aquatic Environment, Heron Island, Australia.
1999 Elasmobranch corticosterone concentrations: related to stress or sex or what? Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., Univ. Penn. (with C. Manire and L. Rasmussen).
1999 Shark Meets Man: Myths, markets and medicine. Monday Nite Lecture Series, Moto Marine Lab.

1998 Neuroecology of Elasmobranch Fishes. Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., University of Guelph.

1998 Shark Meets Man: Myths, markets and medicine. Humanities Lecture Series, Florida Inst. of Technology.

1997 Distribution of GnRH-containing fibers within the octavolateral system of the Atlantic stingray, *Dasyatis sabina*. Annual Meetings of the Soc. for Neuroscience (with W. Krebs).

1997 ChickenII GnRH in the elasmobranch midbrain: Support for the ancestral vertebrate condition. Annual Meetings of the Soc. for Neuroscience (with K. Maruska, P. Forlano, J. King, S. Sower).

1996 Prey selection, habitat use, and daily ration of the Atlantic stingray, *Dasyatis sabina*. Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., New Orleans (with J. Bradley).

1996 Response properties and function of the skate electrosensory system during ontogeny. Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., New Orleans (invited paper for Skate Symposium).

1996 Ecological morphology of the peripheral mechanosensory lateral line in the Atlantic stingray, *Dasyatis sabina*. Annual meeting of the Amer. Soc. Ichthyol. Herp. and Amer. Elasmobranch Soc., New Orleans (with K. Maruska).

1996 Ontogenetic shifts in response properties of the skate electrosensory system. Fourth Annual FISH meetings, Univ. South Florida.

1996 The Estuarian Shark: misconceptions and truths about this accomplished predator. Given at Harbor Branch Oceanographic Institute (invited lecture) as part of the Apex Predatory Workshop sponsored by the IRL National Estuaries Program and Florida Coastal Management Program.

1996 Sensory neuroecology of stingrays. Department of Biology, University of Central Florida.

1995 Feeding mechanics of the lemon shark: Conservative motor and kinematic patterns. Annual meeting of the Amer. Soc. of Zoologists, Washington, D.C. (with P. Motta, R. Hueter, and A. Summers).

1995 Ontogenetic retention and shifts in response features of primary afferent electrosensory neurons in the clearnose skate, *Raja eglanteria*. Annual Meetings of the Soc. for Neuroscience, San Diego (with J. Sisneros and C. Luer).

1995 Feeding neuroecology of the mechanosensory lateral line in the Atlantic stingray, *Dasyatis sabina*. Annual Meetings of the Soc. for Neuroscience (with K. Maruska).

1995 Sensory neuroecology of mating stingrays. Hawaii Institute of Marine Biology, Univ. Hawaii.

1995 Sensory neurobiology of the lateral line and electrosense in stingrays. School of Biological Sciences, Univ. Auckland, New Zealand.

1995 Neuroecology of predation and mating in batoids. Dept. Zoology, Univ. Otago, New Zealand.

1995 Inferred mating activity from the temporal distribution and abundance of mating scars in the Atlantic stingray, *Dasyatis sabina*. Annual meeting of the Amer. Soc. Ichthyol. and Herp., Edmonton (with S. Kajiura and A. Sebastian).

1995 Multiple foraging strategies to maximize energy return in the Atlantic stingray, *Dasyatis sabina*. Annual meeting of the Amer. Soc. Ichthyol. and Herp., Edmonton (with J. Bradley).

1995 Life according to the frequency domain in elasmobranch fishes. Third Annual FISH meetings, Florida State University Marine Lab.

1994 Response dynamics of primary afferent neurons in the electrosensory system of the round stingray, *Urobatis halleri*. Annual Meetings of the Soc. for Neuroscience, Miami (with J. New).

1994 Strength of pair bonds in monogamous species of butterflyfishes. Annual Meetings of the Animal Behavior Society meetings, Univ. Washington, Seattle (with E. S. Reese).

1994 Feeding mechanics of the lemon shark, *Negaprion brevirostris*: a morphological, kinematic, and electromyographic analysis. Annual meeting of the Amer. Soc. Ichthyol. and Herp., Los Angeles (with P. Motta, R. Hueter, A. Summers and C. Wilga).

1994 Electrically-mediated elasmobranch social behavior: Siren song of the female stingray. Annual meeting of the Amer. Soc. Ichthyol. and Herp., Los Angeles (with J. Sisneros and S. Michael).

1994 Electrosensory-mediated orientation and motor patterns: divergent sensorimotor pathways? Second annual FISH meetings. Florida Institute of Technology.

1993 The role of electroreception during mating in the round stingray. First, Annual FISH meetings University of South Florida.

1992 The behavioral ecology of coral feeding butterflyfishes. Long Key Marine Laboratory, Florida.

1991 Toadfish, butterflyfish, and stingrays. New approaches to questions on the behavior and ecology of fishes. Florida Institute of Technology.

1991 How the toadfish tunes its lateral line system during predation. Division of Science, Northeast Missouri State University, Kirksville.

1991 Activation and action of the lateral line efferent system during predation: how the toadfish turns on and tunes its peripheral sensory systems. Dept. Biological Sciences, University of Cincinnati.

1990 Peripheral processing of sensory information by the lateral line efferent system. Annual meeting of the Amer. Soc. of Zoologists, San Antonio.

1990 Turning on and tuning the toadfish lateral line. Parmly Hearing Institute, Loyola University, Chicago.

1990 An electromyographic analysis of the biting mechanism in the lemon shark, *Negaprion brevirostris*, preliminary results. Annual meeting of the Amer. Soc. of Ichthyol. and Herpetol., Charleston, SC (with P. Motta and R. Hueter).

1990 Visual activation of lateral line efferent neurons during predation in the toadfish: how to turn on and tune a peripheral sensory system. Florida International University.

1989 The toadfish efferent lateral line system used during predation. Mote Marine Laboratory.

1989 Activation of the efferent vestibular system demonstrated in the lateral line of free-swimming toadfish. Annual meeting of the Midwest Neurobiologists, Pere Marquette, IL (with S. Highstein).

1988 Foraging strategies of coral-feeding butterflyfishes: a balance between energy maximization and prey profitability. Symposium on the "Biology of butterflyfishes". Sponsored by the Amer. Soc. Ichthyol. and Herp., Ann Arbor, MI (invited speaker).

1988 The relationship between discharge regularity and frequency of primary afferents of the posterior semicircular canal of the toadfish, *Opsanus tau*. Annual meeting of the Soc. for Neuroscience, Toronto (with S. Highstein).

1987 Reproductive histo-ichthyology: advantages to life history studies of coral reef fishes. Annual meeting of the Amer. Soc. Ichthyol. and Herp., Albany, NY.

1987 Organization of the vestibulo-ocular and vestibulo-spinal reflex pathways in the toadfish, *Opsanus tau*: anatomy and electrophysiology. Marine Biological Laboratory, Woods Hole, MA (with S. Highstein and R. Kitch).

1986 Seasonal patterns of reproduction and growth in a coral-feeding kikakapu. A behavioral ecologist's view of fishery statistics. National Marine Fisheries Service, Honolulu, HI.

1986 Life history, foraging ecology, and territorial behavior of the coral-feeding butterflyfish, *Chaetodon multicinctus*. University of Hawaii, Honolulu.

1985 Food and competitors as determinants of feeding territory size: an experimental analysis. Tenth Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu.

1985 The economics of foraging in corallivorous butterflyfishes of Hawaii. Fifth International Coral Reef Congress, Papeete, Tahiti.

1984 Growth and recruitment of the Hawaiian saddleback wrasse, *Thalassoma duperry*. International symposium on the early life history of fish, Vancouver, BC (with R. Radtke).

1984 Food and competitors as determinants of territory size in an Hawaiian butterflyfish. Annual meeting of the Animal Behavior Society, Cheney, WA.

1984 Food and competitors as determinants of feeding territory size: an experimental analysis. Annual meeting of the Amer. Soc. Zoologists symposium, "Territoriality: Conceptual advances in field and theoretical studies", Denver, CO (invited speaker).

1983 The oppositional optimum: foraging behavior of the Hawaiian butterflyfish, *Chaetodon multicinctus*. Eighth Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu.

1983 Feeding ethology of the white shark, *Carcharodon carcharias*, and notes on its biology. Annual meeting of the S. Calif. Acad. Sci. symposium on the biology of the white shark. California State University, Fullerton (invited speaker).

1983 Feeding ethology of the white shark, *Carcharodon carcharias*. Fourth Biennial Conference on Ethology and Behavior Ecology of Fishes. Illinois State University, Normal, IL.

1983 Foraging strategies of the Hawaiian butterflyfish, *Chaetodon multicinctus*:., a case of tempered gluttony. Fourth Biennial Conference on Ethology and Behavior Ecology of Fishes. Illinois State University, Normal, IL.

1982 Predatory behavior of the great white shark, *Carcharodon carcharias*, and notes on its biology. Seventh Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu.

1982 Aspects of white shark biology. Annual meeting of the Amer. Soc. Ichthy. and Herp., Dekalb, IL (with J. McCosker).

1982 To bite or not to bite ...? Foraging strategies of the Hawaiian butterflyfish, *Chaetodon multicinctus*. Annual meeting of the Western Soc. Naturalists, California State University, Long Beach.

1979 The tiger shark: trophic vacuum cleaner or labile predator? Fourth Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu (with L. Taylor and G. Naftel).

1979 Bioelectric detection of fish prey by the swell shark, *Cephaloscyllium ventriosum*. Fourth Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu.

1978 Relationships of the blue shark, *Prionace glauca*, and its prey species near Santa Catalina Island, California. Third Annual Albert L. Tester Memorial Symposium, University of Hawaii, Honolulu.

1976 Food habits and related movements of the blue shark, *Prionace glauca*, L. Annual meeting of the Southern Calif. Acad. Sci., Santa Barbara.